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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,499	07/16/2003	Kenji Nakamura	35907	8509

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EXAMINER	
HAN, QI	
ART UNIT	**PAPER NUMBER**
2626	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/620,499	NAKAMURA ET AL.	
	Examiner	Art Unit	
	Qi Han	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☒ Claim(s) *10,14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/16/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The references listed in the Information Disclosure Statement submitted on 10/27/2000 have been considered by the examiner (see attached PTO-1449).

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recited limitation "a memory section" comprised in the signal processor (see claim 3) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. The claims 10 and 14-15 are objected to because they include reference characters which are not enclosed within parentheses.

Regarding claim 10, it includes limitation "...gives a frequency **"l"** to word acoustic data" (the specification: page 36, last line to page 37, first line). The referenced characters "l" should be enclosed within parentheses, or deleted. Appropriate correction is required.

5. Claims 14-15 are objected to because of the following informalities:

Regarding claims 14-15, the limitation "the voice recognition apparatus according to **claims** 1" appears to be -- the voice recognition apparatus according to claim 1--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2-9 and 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2, it recites the limitation "wherein said voice recognition processor outputs **word** data corresponding to **the name** of the distant party who calls in progress and **a word** identifier to distinguish **the word** to said language model generation and storage section, outputs **an** acoustic data identifier with high degree of coincidence and acoustic data corresponding to **the** acoustic data identifier to said language model generation and storage section, and stores **the** generated acoustic data which are united in **the** form of a sequence of data in time". It is noted that there is insufficient antecedent basis for the limitation "**the** name of the distant party" and/or "**the** form of a sequence of data" in the claim(s). In addition, it is noted that each of the claimed terms "the word", "the acoustic data" and "the generated acoustic data" has more than one possible antecedent bases in the claim and/or in the parent claim, which causes confusion or uncertainty to understand and/or interpret the unclear limitations, so as being indefinite.

Regarding claim 3, it recites the limitation "storing words which precedes and follows **the name**". There is insufficient antecedent basis for the limitation in the claim(s). Further, the limitation "said signal processor comprises a memory section" conflicts with the statement "the signal processor 5 outputs to the memory section 16 a control signal...(implying the memory section is not comprised in the signal processor)" (see the specification: page 15, lines 12-13 and Fig. 1), so as being indefinite.

Regarding claims 4-6, the rejection is based on the same reason described for claim 3, because the dependent claims include the same or similar problematic limitation(s) as claim 3.

In addition, regarding claim 4, the limitation "said signal processor stores a dead space which exists before the name in Japanese without exception in the memory section" is unclear and lacks meaningful and specific description in the claim(s) and the specification, so as being indefinite.

Regarding claim 7, the limitation "wherein said voice recognition processor separately stores first section of **a word** and remaining section of **the word** into a word dictionary storage section and groups together **words** beginning with said first section" is confused and unclear, because one ordinary skilled in the art could not figure out that how and why the separately stored two sections of one word can be grouped together with multiple words, so as being indefinite.

Regarding claims 8-9, the rejection is based on the same reason described for claim 7, because the dependent claims include the same or similar problematic limitation(s) as claim 7.

In addition, regarding claim 8, the limitation "wherein said voice recognition processor **previously** generates a word acoustic data of **a first character from** the first section in said word dictionary storage section **and** the phoneme model **to** store to the language model generation and storage section" is so confused and unclear that one ordinary skilled in the art could not understand why the apparatus needs to "**previously** generates a word acoustic data of **a first character from the** first section in said word dictionary storage section **and** the phoneme model **to** store to the language model generation and storage section". It is also noted that the claim lacks specific description of the relationship/connection between the sections of the word

(in the parent claim 7) and said "a first character" in this claim. Therefore, the claimed limitation is indefinite.

Regarding claim 14, the limitation "wherein said signal processor, in a case that the result displayed on the display unit after recognition operation differs from a result the user intends, stores a information showing the difference into a built-in memory, and **skips the display of a word once erroneously recognized based on the information showing the difference in a case that the same word is uttered**" is confused and unclear. It is noted that according to the parent claim (see claim 1), no matter the (recognition) result is the same as or different from a result that user intends, the result is displayed (cannot skip to display), which conflicts with the limitation of this claim. Further, storing the difference information does not solve the recognition problem, the claim lacks clear and specific description of the relationship between the claimed terms. It is also noted the claimed language causes multiple interpretations. For example, terms "based on...", "in a case..." may modify different part of the context of the limitation and causes multiple meanings by different interpretations. Therefore, the claimed limitation is indefinite.

Regarding claim 15, the rejection is based on the same reason described for claim14, because the claim recites the same or similar problematic limitation(s) as claim 14.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-2, 10-11 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by CHANG (US 2002/0178004 A1).

As per **claim 1**, CHANG discloses 'method and apparatus for voice recognition' (title), comprising:

"an input unit for inputting a voice uttered by a speaker", (paragraph (hereinafter referenced as p) 23, 'a microphone to receive voice signals from a user (speaker)');

"a signal processor for splitting a sound signal input by said input unit to generate acoustic data", (p36, 'a speech (signal) processor 24', 'the STFT is used to window (split) a signal into a sequence of snapshots...is computed by taking the Fourier transform of short segments of data (acoustic data)...generates 20ms frames');

"a language model generation and storage section for storing a plurality of phoneme models", (p20-p21, 'the templates contained (stored) in a VR (voice recognition) acoustic model', 'these templates correspond to short speech segments such as phonemes (so the acoustic model corresponds to phoneme model) ...'; also see p43); and

"a voice recognition processor for comparing the generated acoustic data with a plurality of word acoustic data stored in said language model generation and storage section and outputting identification information including a word identifier of matching word acoustic data as a result of voice recognition" (p27, 'the VR (voice recognition) engine 20 (corresponding to voice recognition processor) associates the entry with a template in database 22 (dictionary)'; p20-p22, 'VR pattern matching engines generally employ either Dynamic Time Warping (DTW)

or Hidden Markov Model (HMM) techniques', 'matching (comparing) the templates in the acoustic model to the sequence of feature vectors extracted from the input utterance'; p33, 'template matching unit 26 is coupled to database 22 and accesses templates stored therein...compare the output (generated acoustic data) of the speech processor 24 to each template (word acoustic data stored) in database 22)...the winner (result of voice recognition) has a score reflecting the closest match of input utterance to a template (word identifier)' that 'is associated with a vocabulary word'; also see p50-p53); and

"a display unit for displaying the recognition result" (p33, 'the vocabulary word associated with the winner...is displayed on a display'),

"wherein said voice recognition processor sequentially compares acoustic data split by said signal processor with the word acoustic data generated from the phoneme model stored in said language model generation and storage section, and stores the word identifier of the word acoustic data corresponding to the generated acoustic data, which match the word acoustic data, as a training signal", (p20-p22 and p33, as state above; p6-p8, 'the memory storage unit operative to update the voice recognition templates based on the digital signal (acoustic data) and an implicit user confirmation'; p39, 'when the test template has higher confidence level than an existing SD template...the SD templates are updated', which implicitly and necessarily treats the digital signal (i.e. acoustic data) as training signal).

As per **claim 2** (depending on claim 1), as best understood in view of the claim rejection under 35 USC 112 2nd (see above), CHANG further discloses "wherein said voice recognition processor outputs word data corresponding to the **name** of the distant party who calls in progress and a word identifier to distinguish the word to said language model generation and storage

section, outputs an acoustic data identifier with **high degree of coincidence** and acoustic data corresponding to the acoustic data identifier to said language model generation and storage section, and stores the generated acoustic data which are united in the form of a sequence of data in time", (p46, 'allow VR entry of user identification information...specific to a user' such as 'user name'; p58, 'the processor and the storage medium may resided in an ASIC' that 'may reside in a remote station' (corresponding distant party); p39, 'the VR engine perform a confidence check to verify the accuracy of the match' , 'when the test template (acoustic data identifier) has a higher confidence level (high degree of coincidence) than an existing SD template for that vocabulary word, the test template is stored in the database...wherein the SD templates are updated (in time)' and 'the comparison may involve multiple test templates, each associated with on vocabulary word in a string (sequence of data)'; also see p20-p22 and p33, as state above).

As per **claim 10**, the rejection is based on the same reason described for claims 1-2, because the claim recites the same or similar limitation(s) as claims 1-2, wherein 'the utterance is recognized as word ...gives the highest probability' (CHANG: p50) is read on "gives a frequency ...having the highest degree of coincidence output" and 'adaptation modifies the model parameters during testing to closely match with the test speaker'(CHANG: p52) is read on "adds up each time of using to perform weighting".

As per **claim 11** (depending on claim 10), the rejection is based on the same reason described for claim 10, because the rejection for claim 10 covers the same or similar limitation(s) as claim 11.

As per **claim 16**, the rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitation(s) as claim 1, wherein 'the set of vocabulary word may be expanded to include...a set of Chinese characters' and 'is capable of displaying one or several sets of language characters' (CHANG: p43) can be broadly read on "stores a specific word of each country into a word dictionary".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 3, 7-8 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over CHANG.

As per **claim 3** (depending on claim 1), as best understood in view of the claim rejection under 35 USC 112 2nd (see above), CHANG discloses "said signal processor comprises a memory section for storing" name (Fig. 5 and p18, 'allow caller to place a call by speaking the corresponding name stored in a repertory'; p46, 'allow VR entry of user identification information...specific to a user' such as 'user name'; Fig. 5, 'memory 30', 'database 22'), but CHANG does not expressly disclose "storing words which precedes and follows the name, wherein the word which precedes the name is assumed as a start signal and the word which follows the name is assumed as an end signal". However, CHANG further discloses 'the VR database stores templates of acoustical features and/or patterns that identify phrases (multiple

words), phonemes and/or alpha-numeric values' (p30), 'the comparison may involve multiple test templates, each associated with one vocabulary word in a string' (p39) and 'a device allow VR entry of user identification information, password, etc., specific to a user', and 'after a user enters his 'User Name' and Password'...'(p46), which suggests that the system has capability of storing and recognizing a string of multiple words having a name in it. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that a phrase or a string of multiple words necessarily/inherently includes a start position (signal) and an end position (signal) and if there is a name in the string, the other words must precede and/or follow the name in the string, and modify CHANG by providing storing/processing a phrase or a string of multiple words having a name, as suggested by CHANG himself, for the purpose (motivation) of allowing VR entry of user identification information specific to a user and/or enhancing VR operation (CHANG: p46).

As per **claim 7** (depending on claim 1), CHANG does not expressly disclose "wherein said voice recognition processor separately stores first section of a word and remaining section of the word into a word dictionary storage section and groups together words beginning with said first section". However, as best understood in view of the claim rejection under 35 USC 112 2nd (see above), CHANG discloses 'these templates correspond to short speech segments such as phonemes, tri-phones or words' (p21), and 'the VA database (corresponding to word dictionary) stores templates of acoustical features and/or patterns that identify phrases, phonemes and/or alpha-numeric values...'(p30), which suggests that the system has capability of implementing the claimed limitation. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that small acoustic data units such as phonemes.

tri-phones or word can be grouped to larger acoustic data units such as word, phrase accordingly, and to combine CHANG's teachings by providing the VA database storing the templates of acoustical features and/or patterns that identify phrase, phonemes and/or alpha-numeric values, as taught by CHANG, so that the small units can be grouped to the larger units when necessary, for the purpose (motivation) of improving VR system and/or enhancing VR operation (CHANG: p6 and p46).

As per **claim 8** (depending on claim 7), the rejection is based on the same reason described for claim 7, because, as best understood in view of the claim rejection under 35 USC 112 2nd (see above), the rejection for claim 7 covers the same or similar limitation(s) as claim 8.

As per **claim 14** (depending on claim 1), CHANG does not expressly disclose "wherein said signal processor, in a case that the result displayed on the display unit after recognition operation differs from a result the user intends, stores a information showing the difference into a built-in memory, and skips the display of a word once erroneously recognized based on the information showing the difference in a case that the same word is uttered". However, as best understood in view of the claim rejection under 35 USC 112 2nd (see above), CHANG discloses that 'the entry from the database is then displayed on display', 'if the displayed entry is correct, the user confirms the entry and the VR engine develops a new template based on the user's spoken entry', otherwise, 'the user may then repeat the entry or retry', and 'the VR engine stores each of these utterances in memory, iteratively adapting to the user's speech' (p27), which suggests that the system has capability of implementing the functionality as claimed. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that a memory for storing processed data can be built-in or external for a processor,

and to use CHANG's system by providing selective way to display processed results for VR, for the purpose (motivation) of improving VR system and/or enhancing VR operation (CHANG: p6 and p46).

As per **claim 15** (depending on claim 10), the rejection is based on the same reason described for claim 7, because the rejection for claim 14 covers the same or similar limitation(s) as claim 15.

9. Claim 13 is are rejected under 35 U.S.C. 103(a) as being unpatentable over CHANG in view of YAMAGISHI et al. (US 7,127398 B1) hereinafter referenced as YAMAGISHI.

As per **claim 13** (depending on claim 10), CHANG does not expressly disclose "wherein said signal processor has a clock function and said voice recognition processor provides a time limit for calculating the use frequency based on a time reported from said signal processor". However, the feature is well known in the art as evidenced by YAMAGISHI who discloses 'an interactive system', comprising 'a voice input section inputting voice uttered by user; a voice recognition section ...converting the recognized voice into symbol string' (col. 2, lines 40-45), 'a calendar (clock) 32 (corresponding to clock function)' (col. 9, lines 17-37), and 'the conversation leaning section 41 utilizes, as evaluation indexes, a word used by the user with high frequency (col. 10, lines 52-54). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that clock function can be implemented in any processor such as DSP or CPU, and evaluation of a word frequency necessarily counts/calculates the occurrences of the word within a certain time period, and to modify CHANG by providing a mechanism of evaluating a word frequency with a certain time period and using a clock

functionality, as taught by YAMAGISHI, for the purpose (motivation) of grasping conversation characteristics/topics by utilizing one of proper evaluation indexes (YAMAGISHI: col. 10, 45-55).

Conclusion

10. Please address mail to be delivered by the United States Postal Service (USPS) as follows:

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Effective January 14, 2005, except correspondence for Maintenance Fee payments, Deposit Account Replenishments (see 1.25(c)(4)), and Licensing and Review (see 37 CFR 5.1(c) and 5.2(c)), please address correspondence to be delivered by other delivery services (Federal Express (Fed Ex), UPS, DHL, Laser, Action, Purolater, etc.) as follows:

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qi Han whose telephone numbers is (571) 272-7604. The examiner can normally be reached on Monday through Thursday from 9:00 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil, can be reached on (571) 272-7602.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: ebc@uspto.gov. For general information about the PAIR system, see http://pair-direct.uspto.gov.

QH/qh
February 5, 2007

2/5/07